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In re Application of: Rogers

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Examiner: Medley, M.

For: Cellular Coal Products and Processes

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By

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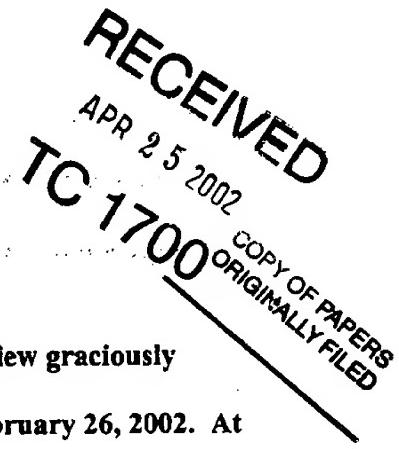
Letter

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

Grateful appreciation is hereby expressed for the interview graciously granted by the Examiner to Applicant and his attorneys on February 26, 2002. At that interview and as noted in the Interview Summary, Applicant agreed to submit a written summary of the interview. This letter constitutes that summary.

During the interview, Mr. Brian Joseph, President of Toughstone Research Laboratories, Wheeling, West Virginia, the assignee of the instant application, reviewed the history and background of his company. He then proceeded to describe the development of the invention claimed in the instant application, a



cellular carbon foam obtained directly from the foaming of comminuted coal that had been subjected to n refinement process prior to comminution and foaming. Such a material and the process for its production were distinguished fr m similar, but clearly distinct, prior art materials that were prepared from pitch, especially petroleum pitch, starting aterials that were the result of numerous and costly refining processes. The economic advantages of such a grossly simplified carbon foam manufacturing process were pointed out. Mr. Joseph then reviewed the commercial interest that has already been generated in these developments, negotiations with three major, Fortune 500, companies for rights to some or all of the technology, and the award of numerous contracts from the Air Force, Navy, NASA, etc. totaling in the neighborhood of some 6 million dollars to support the development of the materials, their process of production and the commercial production of the claimed materials.

A brief review of the arguments presented in the previously submitted Amendment was then presented. This review included, the following discussion.

- 1) The material produced by Harnett is not a foam or regular cellular material. The true density of typical coals is about 1.4 g/cc and calcined coals 1.6 to 1.8 g/cc. Foams by definition comprise more than about 70% porosity, i. e. 30% solids, so the foam bulk density of a "cellular coal or foam" produced from a 1.8 g/cc solid carbon, i.e. a true foam having 70 % porosity and comprising 30 % solids, would be significantly less than 0.93 g/cc and, in fact, somewhat less than on the order of 0.8 g/cc as claimed in the instant application. Thus, to rely upon

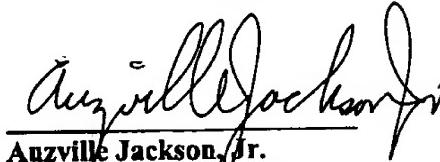
Harnett as anticipat ry of the cellular materials of the present invention, in any fashion, is clearly erroneous since the materials of Harnett are not even foams or cellular in the sense clearly intended by the present invention. Additionally, the materials of Harnett et al are produced from a petroleum pitch and are not at all "coal-based".

- 2) The Examiner posited that "it would be obvious that the coals of Harnett would inherently have a swell index of about 3.5 and about 5.0 in view of Madley et al which it is alleged teach that the swelling properties of coals can be controlled by varying pretreatment conditions such as temperature and reaction time. The swell index of a particular coal as determined by ASTM D 720, a copy of which has been provided to the Examiner, is an inherent property of the coal, as mined. Madley et al on the other hand are apparently trying to reduce the swelling propensity of high volatile coals for purposes of permitting their appropriate blending with as second coal to permit briquetting thereof. There is absolutely no suggestion that such coals could be used to produce cellular coal based products having the properties described in the instant application or for that matter that such "modified" coal materials would or could be applied in the totally non-analogous process of Harnett. It is only with the teachings of the present invention before them that anyone would even reach for this combination of references to suggest that the process and materials of the present invention are "obvious".

Since further rejections of the various claims of the application relied fundamentally on this combination of references no further arguments were presented vis-à-vis these additional claims. It was further pointed out that it is clear that neither Harnett taken alone or in combination with Madley et al would suggest the simple process of the present invention that takes coal out of the ground, virtually "dirt", a very low cost material, and through simple comminution and heating produces a product exhibiting the characteristics of the foams of the present application that are clearly not described in either Harnett or Madley et al. and are clearly not obtained from the processes described in these patents, as their objectives and uses are clearly distinguishable from those of the present invention. Harnett's material is surely not a foam and the material of Madley et al. could clearly not produce a foam of the type described and claimed in the instant application since their starting material is, at best, of a low swell index to specifically avoid foaming as is desirable in the instant case.

The foregoing represents a summary of the discussion items presented during the above-referenced interview.

Respectfully submitted,


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